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# HYDROIDS OF THE 1939 ALLAN HANCOCK CARIBBEAN SEA EXPEDITION

(PLATES 1, 2, 3)

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## FOREWORD

*Dr. C. McLean Fraser passed away at his home in Vancouver, Canada, December 26, 1946, while this paper was in press. After completing this paper for the Allan Hancock Foundation Dr. Fraser began work on the last shipment of hydroids from the Pacific Expeditions. Early in December he wrote that he had completed the taxonomic paper to be the no. 5 paper of volume 4, Allan Hancock Pacific Expeditions, based on the studies of hydroids of the Pacific which form most of the Allan Hancock Foundation collections. The no. 6 paper was to have been an analysis of distribution of hydroids in the Eastern Pacific for the same volume.*

*Considering the great debt that the Foundation owed to Dr. Fraser for all of his assistance since 1934 when he began his work with us, a summary of his tremendous contribution in the field of hydroid research will be included in the same volume with his final paper to be published later this year.*

Irene McCulloch, *Editor*

*Allan Hancock Foundation Publications*

*Hancock Professor of Invertebrate Zoology*





# HYDROIDS OF THE 1939 ALLAN HANCOCK CARIBBEAN SEA EXPEDITION

BY C. McLEAN FRASER

When, in April, 1939, the *Velero III* passed through the Panama Canal to make an exploratory trip through the Caribbean Sea as far east as Trinidad and Tobago, the sea and the air were not very co-operative and, in consequence, collecting marine biological specimens was often a difficult, sometimes an impossible, procedure. Nevertheless, since the region has been investigated so seldom, the results were well worth while.

This is not the first time that hydroids have been reported from the region traversed by the *Velero III*. Leloup has reported the greatest number of species, one of them from the Island of Tortuguilla, Venezuela, and all the rest of them from the Dutch West Indies: Bonaire, Little Bonaire, Curaçao, and Aruba. Versluys reported several from the vicinity of Testigos Island, and one from Bahia Honda, Colombia. Nutting reported one species from west of Colon, one from the Gulf of Darien, and one from Trinidad. Fraser reported several from Maguaripe Bay, Trinidad, collected by Elisabeth Deichmann.

The number of species collected by the Hancock Expedition looks small as compared with the total number previously reported, and yet out of the thirty-seven species obtained and identified, only thirteen have been reported previously from this region. Of the remaining twenty-four species, six are described as new, hence the collecting is not lacking in interest.

This provides an opportunity to express my thanks to Captain Hancock and his associates who provided the hydroid material, and to the Allan Hancock Foundation for sorting out and sending the material for examination.

## DISTRIBUTION

Of the 37 species of hydroids obtained, only 10, *Eudendrium tenellum*, *Clytia noliiformis*, *Gonothyraea gracilis*, *Endothecium paucinodum*, *Sertularia exigua*, *Sertularia stookeyi*, *Sertularia turbinata*, *Thuiaria crisioides*, *Callicarpa chazaliei*, and *Plumularia diaphana*, appeared at more than one station. The species were distributed as follows:

Caledonia Bay . . . . .	7
1 mile southwest of Cape la Vela . . . .	1
2 miles southwest of Cape la Vela . . . .	2
2 miles off Bahia Honda . . . . .	5
8 miles southwest of San Nicolaas Bay, Aruba	10
Tortuga Island . . . . .	8
4 miles north of Tortuga Island . . . .	1
Cubagua Island . . . . .	1
3 miles north of Coche Island . . . . .	5
Buccoo Bay, Tobago Island . . . . .	1
7 miles north of Margarita Island . . . .	3

As is usual in the American Tropics, the predominant family is the Plumularidae with 10 species, but the Sertularidae follows closely with 9 species. There are only 5 species of gymnoblats in the lot; if a more extensive collecting of sargassum had been possible, the result in this regard might have been different.

Special mention should be made of 1 of the 6 species that are described as new, *Endothecium paucinodum*. The Caribbean hydroids arrived from the Hancock Foundation for examination with a large shipment of hydroid material from the Eastern Pacific. As it happened the Pacific material was examined first. In some of this, from the vicinity of the Island of Anacapa, Southern California, specimens of a species of *Endothecium*, not previously described, were obtained. As far as the trophosome was concerned, these were fine specimens, and one of them was figured and described. There was no gonosome observed on any of them, hence it was taken for granted that the species was an *Halecium*. Later, when the Caribbean material was examined, this same species appeared. As far as the trophosome was concerned, the colonies were not so fine as those from off Anacapa Island, but some of them were complete, with the gonosome present. Now it was evident that this was a species of *Endothecium*. As the description of the trophosome held for these specimens as well, this description has been retained, and to it has been added the description of the gonosome from Caledonia Bay.

Besides this one species common to both coasts, there are 16 others, 46 per cent of the records, practically all of which help to show more clearly the route taken in extending the range from the West Indian and the Caribbean Sea regions to the Eastern Pacific. The high percentage of the species common to both coasts provides another addition to the accumulating evidence that much use was made of the passage or passages in earlier times connecting the Caribbean Sea, or the Gulf of Mexico, with the Pacific Ocean, as a well established distribution route.

## CLASSIFICATION AND DESCRIPTION

As all of the species except the 6 that have been described as new have been fully treated in the volume on Atlantic hydroids, it is quite unnecessary to include an extensive synonymy here. As usual, there is a reference to the original description of the species, and to this is added a reference to the description and synonymy as it is given in the Atlantic work. As in this Atlantic volume all the literature used for reference in this paper has been cited, no bibliography is necessary.

Where the distribution record supplied makes an appreciable extension of the previously known distribution range of the species, the extension is indicated.

Sub-order **GYMNOBLASTEAE**Family **Corynidae**Genus **ZANCLEA****Zanclea costata** Gegenbaur

*Zanclea costata* Gegenbaur, Zeitsch. Wissen. Zool., 1856, p. 229.

Fraser, Atlantic Hyd., 1944, p. 43.

*Distribution*.—Caledonia Bay, on floating sargassum.

This record, some considerable distance from Dry Tortugas, takes the species somewhat nearer to the passage through to the Pacific, on the way to Braithwaite Bay, Socorro Island, where it has been reported.

Family **Eudendridae**Genus **EUDENDRIUM****Eudendrium exiguum** Allman

*Eudendrium exiguum* Allman, Gulf Stream Hyd., 1877, p. 6.

Fraser, Atlantic Hyd., 1944, p. 68.

*Distribution*.—7 miles north of Margarita Island, 17-22 fathoms.

This extends the range southward from Florida Reef and Sand Key, in the direction of the locations in the Eastern Pacific.

**Eudendrium laxum** Allman

*Eudendrium laxum* Allman, Gulf Stream Hyd., 1877, p. 7.

Fraser, Atlantic Hyd., 1944, p. 71.

*Distribution*.—3 miles north of Coche Island, 21-22 fathoms.

The record marks a southern extension of the range of the species from south of Marquesas Island, near Key West, Florida.



**Eudendrium tenellum Allman**

*Eudendrium tenellum* Allman, Gulf Stream Hyd., 1877, p. 8.

Fraser, Atlantic Hyd., 1944, p. 74.

*Distribution*.—2 miles southwest of Cape la Vela, 21-22 fathoms; 3 miles north of Coche Island, 21-22 fathoms.

These records are not far to the southwestward of Grenada Island but they take the species a little nearer to the numerous locations in which it has been found in the Eastern Pacific, from the Galapagos Islands and the coast of Ecuador, to San Pedro Nolasco Island in the Gulf of California.

**Family Cladocorynidae****Genus CLADOCORYNE****Cladocoryne pelagica Allman**

*Cladocoryne pelagica* Allman, Jour. Linn. Soc., 1876, p. 255.

Fraser, Atlantic Hyd., 1944, p. 108.

*Distribution*.—Tortuga Island, 2-5 fathoms.

This location is a long way from Vineyard Sound and similarly far from the two far apart locations at which it has been reported in the Eastern Pacific, Santa Elena Bay, Ecuador and Braithwaite Bay, Socorro Island, but it is also scattered widely in other directions. The fact that it has been found commonly on floating sargassum may help to account for the worldwide range.

**Sub-order CALYPTOBLASTEAE****Family Campanularidae****Genus CAMPANULARIA****Campanularia (?) certidens, new species**

Plate 1, Fig. 1

*Trophosome*.—Individuals grow from a filiform stolon with little evidence of reticulation. As the pedicel is not of great length, the whole zooid is but 1.5 mm in height or less. The pedicel is strongly wavy throughout rather than annulated; at the distal end, supporting the hydrotheca, there is a spherical portion with an annulation above and below it. The hydrotheca (0.5 x 0.27 mm) is well proportioned with the sides regularly but slightly convex and the diameter gradually increasing from base to margin. On the margin, the 10 teeth are distinctly cut, the tooth having parallel sides except near each end; the tip of the tooth is smoothly rounded, and the base of the sinus similarly so.



*Gonosome*.—Not observed.

*Distribution*.—Station A22-39. Off Tortuga Island, 2-5 fathoms.

*Remarks*.—*C. certidens* bears much resemblance to *C. macroscypha* Allman, more than to any other American species, although it is much of a miniature as compared with that species. In *C. macroscypha* the whole zooid may be 7 times as long, and the hydrotheca 4 times as long, and more than twice as broad as in this species, and yet the hydrotheca is much the same shape and the teeth on the margin are very similar, although there are but 10 here as compared with 12-14 in *C. macroscypha*; the spherical section of the pedicel at the base of the hydrotheca is similar. In *C. macroscypha* there are a few much scattered annulations on the pedicel, while in *C. certidens* there is none, although the surface is wavy. In neither has the gonosome been observed, so the closeness of the relationship cannot be pressed further. *C. macroscypha* is a common species in the West Indian region.

### ***Campanularia marginata* (Allman)**

*Obelia marginata* Allman, Gulf Stream Hyd., 1877, p. 9.

*Campanularia marginata* Fraser, Atlantic Hyd., 1944, p. 124.

*Distribution*.—8 miles southwest of San Nicolaas Bay, Aruba Island, 23-24 fathoms.

This location is but a short distance from Testigos Island and Trinidad. The species is common throughout the whole Caribbean Sea area and the West Indies, as well as farther north along the coast of the United States.

### ***Campanularia megalocarpa*, new species**

Plate 1, Fig. 2

*Trophosome*.—The colony, 3 cm, has a stem that is fascicled but not strongly, in the proximal portion, and but rarely in the proximal portion of the branches. The simple portion of the stem and branches is somewhat flexuous, with the pedicel of the hydrotheca, or a branch, arising from each bend in definite alternation. The stem or branch has 2 or 3 annulations above the origin of each pedicel. The hydrotheca is borne on a relatively short pedicel which is annulated throughout; it is elongated campanulate with straight sides and little or no flare (0.5 x 0.25 mm); the margin is entire.

*Gonosome*.—The gonangium takes the place of a hydrotheca, with a similar pedicel; it is very large, 1.5 x 0.4 mm, the longitudinal section, cuneate, with the margin forming the broad base of the wedge; the cir-

cular aperture occupies all, or nearly all, of the distal end; the surface is supplied with somewhat faint annulations placed quite close to one another.

*Distribution*.—Station A42-39. 7 miles north of Margarita Island, 21-22 fathoms.

*Remarks*.—Except in its generic characters this species has little in common with any other American species, hence no suggestion can be given as to its relationship.

### Genus **CLYTIA**

#### **Clytia noliformis** (McCrary)

*Campanularia noliformis* McCrary, Gymno. Charleston Har., 1858, p. 92.

*Clytia noliformis* Fraser, Atlantic Hyd., 1944, p. 144.

*Distribution*.—Caledonia Bay, on floating sargassum; 3 miles north of Coche Island, 21-22 fathoms.

#### **Clytia similis**, new species

Plate 1, Fig. 3

*Trophosome*.—*Clytia similis* appears in a habitus of two types; in the one the nutritive zooids appear individually growing directly from the stolon, and in the other, at least two zooids appear in a colony, the pedicel of one of them being in the nature of the stem from which pedicel the other grows as a branch. The hydrotheca is large, deeply campanulate (1.0 x 0.35 mm), expanding but little from near the base to the margin. It is shaped much like that of *Gonothyraea gracilis*, with the teeth, 11-12, sharp and deeply cut like those in that species. The pedicel varies in length from three-fourths of the length of the hydrotheca to one and a half times that length; it is closely annulated for some distance from the base and much less closely annulated for a lesser distance distally. A colony with 2 hydrothecae is 6 mm in height, with the secondary hydrotheca and pedicel 3 mm. The annulation is similar to that in the pedicel of the solitary zooid.

*Gonosome*.—In colonies where solitary zooids appear, the gonangia grow directly from the stolon; in colonies where 2 or more zooids appear, the gonangia grow from the primary pedicel or stem. They are very similar to the gonangia of *Clytia johnstoni*, elongated oval, truncate distally, and tapering to a short pedicel proximally. The surface is corrugated, each corrugation terminating in a distinct ridge.

*Distribution*.—Station A32-39. 3 miles north of Coche Island, 19-33 fathoms. It was obtained as well at Cubagua Island on algae in shallow water.

*Remarks.*—The colonies of *Clytia similis* in which the zooids, both nutritive and generative, develop singly from the stolon, resemble those of *C. johnstoni* (Alder), in every character except the shape and size of the hydrotheca. In *C. similis*, the hydrotheca is much longer and more slender than that of *C. johnstoni*; the marginal teeth are sharper and more deeply cut. The colonies with two or more hydrothecae and one or more gonangia growing from the pedicel, bear almost as great resemblance to those of *C. minuta* (Nutting), although they are not so slender. Here, too, the hydrothecae are different; in *C. minuta*, they are much smaller, with the length and breadth more nearly equal; there are fewer marginal teeth; the pedicels are more extensively annulated; the corrugations on the gonangium are closer together and hence more numerous. To get a duplicate of the hydrotheca it is necessary to go to another genus, *Gonothyraea*, in the species *G. gracilis* (Sars).

In most species it seems to be quite sufficient to find a close resemblance to one other species, but here similarity shows up in 3 species not very closely related to each other. The difference is least in the case of *C. johnstoni*, and the distribution range of this species makes it more readily possible to suggest that *C. similis* has been derived directly from that species.

### Genus GONOTHYRAEA

#### *Gonothyraea gracilis* (Sars)

*Laomedea gracilis* Sars, Beret. om in Zool. Reise, 1851, p. 18.

*Gonothyraea gracilis* Fraser, Atlantic Hyd., 1944, p. 148.

*Distribution.*—1 mile southwest of Cape la Vela, 10-13 fathoms; 3 miles north of Coche Island, 21-22 fathoms.

These locations are much to the southward of the records from the Florida and Louisiana coasts, and possibly show the route taken to the locations in the Eastern Pacific where it has been collected.

### Genus OBELIA

#### *Obelia equilateralis* Fraser

*Obelia equilateralis* Fraser, Allan Hancock Pacific Exped., 4(1): 1938, p. 36.

Fraser, Atlantic Hyd., 1944, p. 157.

*Distribution.*—Caledonia Bay, hand line on rocky reef.

This location is quite a long way from the Louisiana coast, but still farther away in the other direction from Santa Elena Bay, Ecuador. It helps somewhat to link up the two.

Family **Campanulinidae**  
Genus **THYROSCYPHUS**  
**Thyroscyphus intermedius** Congdon

*Thyroscyphus intermedius* Congdon, Bermuda Hyd., 1907, p. 482.

Fraser, Atlantic Hyd., 1944, p. 181.

*Distribution*.—8 miles southwest of San Nicolaas Bay, Aruba Island, 23-24 fathoms.

Family **Halecidae**  
Genus **ENDOTHECIUM**  
**Endothecium paucinodum**, new species  
Plate 1, Fig. 4a; Plate 2, Fig. 4b-d

*Trophosome*.—(The description of the trophosome was taken from a specimen obtained in the Eastern Pacific, west northwest of Anacapa Island, Southern California, in 41-43 fathoms). A colony, 6 cm, is made up of a coarse, fascicled stem, with a few primary branches, also coarse and fascicled, although not so heavy as the main stem; the secondary branches are more numerous but they are irregularly arranged, with an approach to alternation. The internodes, or the corresponding portions of the stem or branch, are relatively short. The hydrophores are pedicellate, but the proximal portion is adherent to the stem or branch; the pedicel gradually increases in diameter to the slightly flaring margin. In some instances duplication takes place.

*Gonosome*.—The gonangia arise from the hydrophores on the simple portion of the branches, or on the distal part of the fascicled stem, where the tubes are reduced to 2 or 3. They are long, up to 2 mm, cuneate in longitudinal section, 0.5 mm in the broadest portion; the distal end is but slightly rounded; the surface is smooth, regular.

*Distribution*.—Station A55-39. Caledonia Bay, handline on rocky reef. The species was found as well 8 miles southwest of San Nicolaas Bay, Aruba Island, 23-24 fathoms.

*Remarks*.—These 2 locations are far from Anacapa Island, but the species is not alone in having this range of distribution.

The species bears much resemblance to *Halecium arboreum* Allman (Challenger Report, 1888, p. 10), a large species, 20 cm, reported from Cumberland Bay, Kerguelen Island, in 105 fathoms. *E. paucinodum* is not nearly so large but it has the same type of fasciculation and branching; the hydrophore and pedicel are similar and similarly attached to the stem. When the nodes are present though, they are transverse rather than oblique. Since Allman did not observe the gonosome, it cannot be determined whether it should have been described as an *Endothecium*.



One might readily believe that the one was derived from the other if it were not for the great distance which separates the locations of the two species, with no recognized distribution route connecting them.

The genus *Endothecium* was established to include the species *E. reduplicatum*, originally obtained in Japanese waters, but later obtained along the Eastern Pacific coast from Panama to Mexico. *E. paucinodum* is the second species described but as far as the trophosome is concerned it looks much more like *Halecium arboreum* than *E. reduplicatum*. There is more resemblance to the latter in the gonosome.

Genus **HALECIUM**  
**Halecium tenellum** Hincks

*Halecium tenellum* Hincks, Ann. and Mag. N.H., (3), 8, 1861, p. 252.  
Fraser, Atlantic Hyd., 1944, p. 201.

*Distribution*.—Tortuga Island, 2-5 fathoms.

This species with a wide general distribution along the Atlantic coast of North America as well as in the Eastern Pacific has been reported from the nearby Dutch West Indies.

Family **Hebellidae**  
Genus **HEBELLA**  
**Hebella calcarata** (A. Agassiz)

*Lafaea calcarata* A. Agassiz, N.A. Acalephae, 1865, p. 122.  
*Hebella calcarata* Fraser, Atlantic Hyd., 1944, p. 205.

*Distribution*.—Tortuga Island, 2-5 fathoms.

Previously the southernmost record in the north Atlantic was from Tampa, Florida. This record does not bring it much nearer to the various locations in which it has been collected in the Eastern Pacific, from Secas Islands, Panama, to Isla Partida in the Gulf of California.

Family **Lafoeidae**  
Genus **FILELLUM**  
**Filellum serpens** (Hassall)

*Campanularia serpens* Hassall, Trans. Micr. Soc., 1852, p. 163.  
*Filellum serpens* Fraser, Atlantic Hyd., 1944, p. 215.

*Distribution*.—3 miles north of Coche Island, 21-22 fathoms.

This location is some distance to the westward of the nearest previous record, Grenada Island, and hence somewhat nearer to the numerous locations in which it has been collected in the Eastern Pacific.

Family **Synthecidae**Genus **SYNTHECIUM****Synthecium** (?) **nanum** Fraser

*Synthecium nanum* Fraser, Proc. New England Zool. Club, 1943, vol. XXII, p. 80, 91.

*Synthecium* (?) *nanum* Fraser, Atlantic Hyd., 1944, p. 235.

*Distribution*.—2 miles southwest of Cape la Vela, 21-22 fathoms.

The only previous record of this species was from the Dry Tortugas.

Family **Sertularidae**Genus **SERTULARELLA****Sertularella conica** Allman

*Sertularella conica* Allman, Gulf Stream Hyd., 1877, p. 21.

Fraser, Atlantic Hyd., 1944, p. 258.

*Distribution*.—8 miles southwest of San Nicolaas Bay, Aruba Island, 23-24 fathoms.

This record extends the range from Dry Tortugas southward; in doing so, it helps to connect up the range in the western Atlantic and the Eastern Pacific.

Genus **SERTULARIA****Sertularia cornicina** (McCrady)

*Dynamena cornicina* McCrady, Gymno. Charleston Har., 1858, p. 102.

*Sertularia cornicina* Fraser, Atlantic Hyd., 1944, p. 279.

*Distribution*.—8 miles southwest of San Nicolaas Bay, Aruba Island, 23-24 fathoms.

**Sertularia dalmasi** (Versluys)

*Desmoscyphus dalmasi* Versluys, Mem. Soc. Zool. France, 1899, p. 38.

*Sertularia dalmasi* Fraser, Atlantic Hyd., 1944, p. 280.

*Distribution*.—Tortuga Island, 2-5 fathoms.

The range is extended southward from the Dry Tortugas.

**Sertularia exigua** Allman

*Sertularia exigua* Allman, Gulf Stream Hyd., 1877, p. 21.

Fraser, Atlantic Hyd., 1944, p. 280.

*Distribution*.—2 miles off Bahia Honda, 9 fathoms; off Tortuga Island, 2-5 fathoms.

The range is extended southward from Florida.

**Sertularia inflata** (Versluys)

*Desmoscyphus inflatus* Versluys, Mem. Soc. Zool. France, 1899, p. 42.

*Sertularia inflata* Fraser, Atlantic Hyd., 1944, p. 283.

*Distribution*.—Tortuga Island, 2-5 fathoms.

**Sertularia notabilis**, new species

Plate 2, Fig. 5

*Trophosome*.—Colony small, 5 mm, unbranched. Stem is divided into regular, rather long, internodes by well marked transverse nodes; each internode bears a pair of hydrothecae near its proximal end. The hydrothecae adhere for about half of their length in front, and for the same distance in the back they are definitely apart but parallel; the distal portion is turned sharply outward. There are 3 rather inconspicuous teeth on the margin.

*Gonosome*.—The gonangium is quite notable; it is long, over 2 mm, somewhat curved, nearly cylindrical, but somewhat tumid in the proximal portion; it is truncate distally, but tapers proximally to form a very short pedicel. It is transversely corrugated throughout, each corrugation having a distinct ridge. In some cases, but one gonangium grows from the face of the stem just at the base of the proximal pair of hydrothecae, but often there is another one at the base of the second pair.

*Distribution*.—Station A22-39. Tortuga Island, 2-5 fathoms.

*Remarks*.—The hydrothecae of *S. notabilis* are somewhat similar in shape and similarly placed to those in *S. pourtalesi* Nutting, but that species is much larger and is branched; the hydrothecae appear near the distal end of the internodes. The gonosome of *S. pourtalesi* has not been described, so further comparison is out of the question.

**Sertularia stookeyi** Nutting

*Sertularia stookeyi* Nutting, Amer. Hyd. II, 1904, p. 59.

Fraser, Atlantic Hyd., 1944, p. 288.

*Distribution*.—Caledonia Bay, on floating sargassum; Cubagua Island, shore.

These two locations extend the range westward from Maguaripe Bay, Trinidad, in the direction of the various locations in which the species has been collected in the Eastern Pacific.

**Sertularia turbinata** (Lamouroux)

*Dynamena turbinata* Lamouroux, Hist. Polyp. Flex., 1816, p. 180.

*Sertularia turbinata* Fraser, Atlantic Hyd., 1944, p. 290.

*Distribution*.—Caledonia Bay, on floating sargassum; Tortuga Island, 2-5 fathoms.

The first of these records extend the range westward from the Dutch West Indies, the previous farthest west in this latitude.

### Genus **THUIARIA**

#### **Thuiaria crisioides** (Lamouroux)

*Dynamena crisioides* Lamouroux, Descr. Polyp. Flex., 1824, p. 613.

*Thuiaria crisioides* Fraser, Atlantic Hyd., 1944, p. 296.

*Distribution*.—Caledonia Bay, shore; 2 miles off Bahia Honda, 9 fathoms.

These locations are not far from the records in the Dutch West Indies but they do help to connect those up with the numerous records in the Eastern Pacific.

### Family **Plumularidae**

#### Genus **ANTENNELLA**

#### **Antennella gracilis** Allman

*Antennella gracilis* Allman, Gulf Stream Hyd., 1877, p. 38.

Fraser, Atlantic Hyd., 1944, p. 315.

*Distribution*.—8 miles southwest of San Nicolaas Bay, Aruba Island, 23-24 fathoms.

This location is somewhat to the westward of the nearest record, off Barbados, and hence forms a link in the route to the various locations in the Eastern Pacific.

### Genus **ANTENNOPSIS**

#### **Antennopsis sinuosa**, new species

Plate 3, Fig. 6

*Trophosome*.—Colony, 8 cm, with a sinuous, strongly fascicled, main stem, several fascicled, primary branches, varying much in length, and numerous secondary branches, simple, unless in the proximal portion. As the primary branches come off the sinuosities of the main stem sometimes there is an appearance of dichotomy; a smaller second branch may be given off at the angle. The ultimate branches are divided into regular internodes by nodes which are not always very distinct. The hydrocladia are commonly regularly alternate, but in some places, besides the regular series, other hydrocladia are scattered irregularly, occasionally making a verticil of 4, but more often with no definite position in relation to the others. Each hydrocladium is supported by a cauline process of medium length, in the case of the regular hydrocladia, near the distal node. In the hydrocladia, thecate and shorter athecate internodes alter-



nate, the proximal being thecate. The hydrotheca is placed near the middle of the internode; each node is flanked on each side by a well marked septum. Besides the supracalcine nematophores, there is a single, mesial nematophore on each internode. On the cauline process there is a pseudonematophore, with a nematophore proximal, and one distal, to it; there is a cauline nematophore opposite the cauline process.

*Gonosome*.—Not observed.

*Distribution*.—Station A18-39. 8 miles southwest of San Nicolaas Bay, Aruba Island, 23-24 fathoms.

*Remarks*.—Five species of *Antennopsis* have been reported from the western Atlantic but *A. sinuosa* is not very close to any of them. It has more in common with *A. annulata* (Allman) than with any of the others. As in *A. annulata*, the stem is pinnately branched proximally, while extra branches are introduced distally. The sinuosity of the stem is a special feature. Both are strongly fascicled in stem and primary branches. The hydrocladial process is not so long and there is no athecate internode proximal to the first thecate. The thecate and athecate internodes alternate in the same way and have somewhat the same relative lengths. The internode is similarly provided with well marked septa. The most striking difference is in the hydrotheca, its position and shape. While in *A. sinuosa* the position of the hydrotheca is typically near the distal end and the shape of the hydrotheca is typically plumularian, in *A. annulata*, it is placed near the proximal node and is at least twice as deep as wide. This would suggest that *A. sinuosa* is the older species. The differences are too great to indicate close relationship.

### Genus **CALLICARPA**

#### **Callicarpa chazaliei** Versluys

*Callicarpa chazaliei* Versluys, Mem. Soc. Zool., France, 1899, p. 44.

Fraser, Atlantic Hyd., 1944, p. 327.

*Distribution*.—7 miles north of Margarita Island, 17-22 fathoms.

The only previous record was near the Dry Tortugas, Florida.

### Genus **PLUMULARIA**

#### **Plumularia diaphana** (Heller)

*Anisocalyx diaphana* Heller, Adriatic Hyd., 1868, p. 42.

*Plumularia diaphana* Fraser, Atlantic Hyd., 1944, p. 348.

*Distribution*.—8 miles southwest of San Nicolaas Bay, Aruba Island, 23-24 fathoms; Buccoo Bay, Tobago Island, shore, coral reef.

**Plumularia margaretta** (Nutting)

*Monothea margaretta* Nutting, Amer. Hyd. II, 1900, p. 72.

*Plumularia margaretta* Fraser, Atlantic Hyd., 1944, p. 348.

*Distribution*.—2 miles off Bahia Honda, 9 fathoms.

This location is not far to the westward of the Dutch West Indies, where the species was previously reported. It has been collected off La Plata Island, Ecuador, in the Eastern Pacific.

**Plumularia setaceoides** Bale

*Plumularia setaceoides* Bale, Hyd. S.E. Australia, 1882, p. 28.

Fraser, Atlantic Hyd., 1944, p. 353.

*Distribution*.—Caledonia Bay, on floating sargassum.

The nearest previous record was Key West, Florida.

**Plumularia strictocarpa** Pictet

*Plumularia strictocarpa* Pictet, Revue Suisse Zool., 1893, p. 55.

Fraser, Atlantic Hyd., 1944, p. 353.

*Distribution*.—2 miles off Bahia Honda, 9 fathoms.

This location is not far to the westward of the Dutch West Indies where the species has been reported.

**Genus HALOPTERIS****Halopteris carinata** Allman

*Halopteris carinata* Allman, Gulf Stream Hyd., 1877, p. 43.

Fraser, Atlantic Hyd., 1944, p. 360.

*Distribution*.—2 miles off Bahia Honda, 9 fathoms.

The nearest records of this species to this are those off Dry Tortugas in the one direction and Montserrat in the other.

**Genus AGLAOPHENIA****Aglaophenia allmani** Nutting

*Aglaophenia allmani* Nutting, Amer. Hyd. I, 1900, p. 100.

Fraser, Atlantic Hyd., 1944, p. 365.

*Distribution*.—8 miles southwest of San Nicolaas Bay, Aruba Island, 23-24 fathoms.

The nearest records to this are Dry Tortugas to the north and Barbados to the east.

**Aglaophenia rigida** Allman

*Aglaophenia rigida* Allman, Gulf Stream Hyd., 1877, p. 43.

Fraser, Atlantic Hyd., 1944, p. 389.

*Distribution.*—8 miles southwest of San Nicolaas Bay, Aruba Island, 23-24 fathoms.

The nearest records to this are those off Florida and that off Barbados. There are several records off Mexico in the Eastern Pacific.



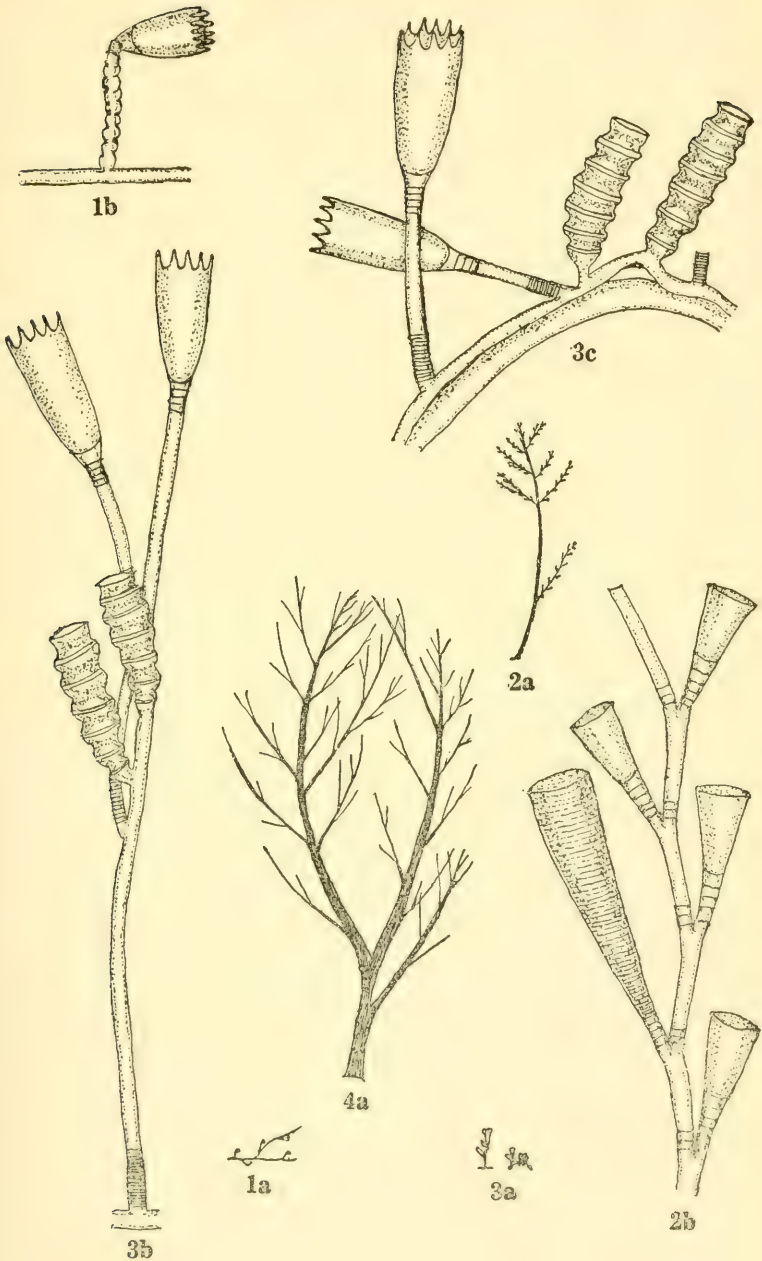


# Explanation of Plates

(All magnifications 20 diameters)

## PLATE 1

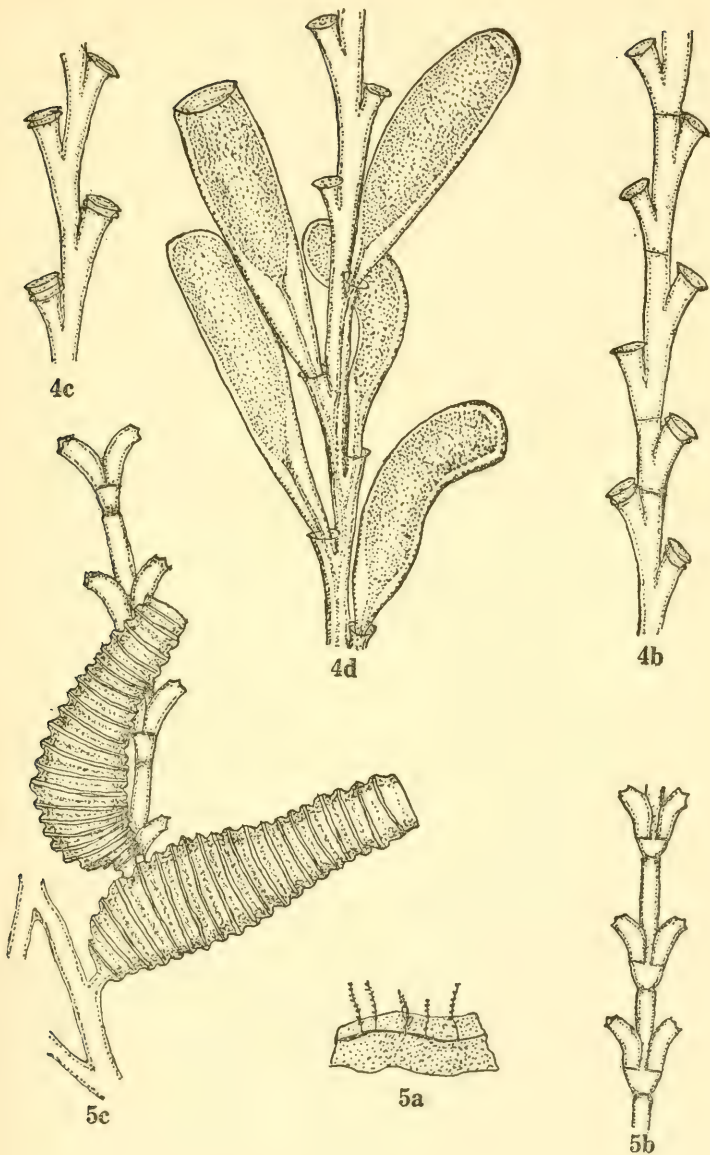
- Fig. 1. *Campanularia* (?) *certidens*  
a. Portion of colony, natural size.  
b. A solitary zooid.
- Fig. 2. *Campanularia megalocarpa*  
a. Colony, natural size.  
b. Portion of colony showing hydrothecae and gonangia.
- Fig. 3. *Clytia similis*  
a. Colony, natural size.  
b. An elongated colony with hydrothecae and gonangia.  
c. An unbranched colony with hydrothecae and gonangia.
- Fig. 4. *Endothecium paucinodum*  
a. Colony, natural size.



## PLATE 2

- Fig. 4. *Endothecium paucinodum*  
b. Portion of branch with scattered nodes.  
c. Portion of branch without nodes.  
d. Portion of branch with gonangia.
- Fig. 5. *Sertularia notabilis*  
a. Colony, natural size.  
b. Portion of stem, back view.  
c. Face view of stem with gonangia.

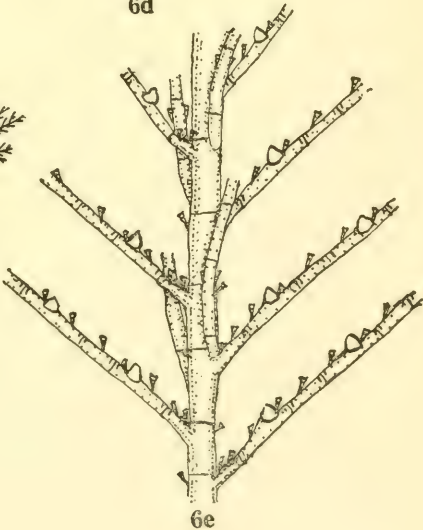
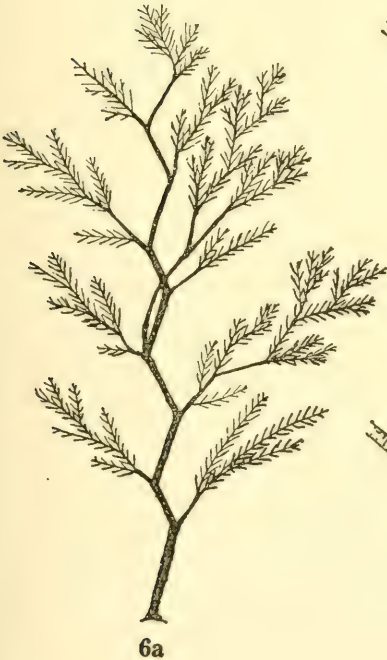
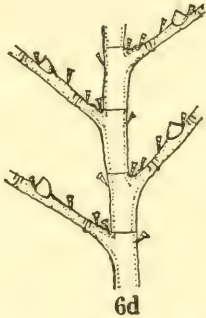
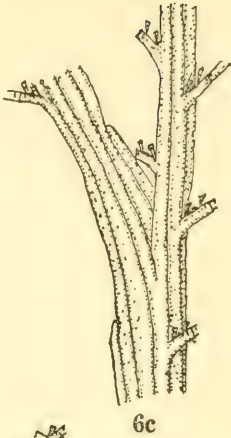
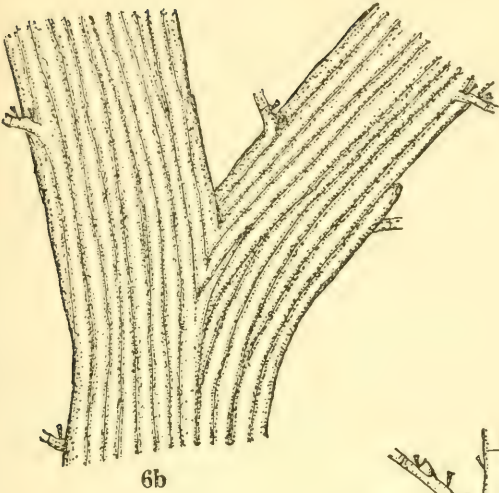




## PLATE 3

Fig. 6. *Antennopsis sinuosa*

- a. Colony, natural size.
- b. Portion of fascicled stem, near the base.
- c. Fascicled portion of branch.
- d. Portion of branch with regularly alternating hydrocladia.
- e. Portion of branch with some hydrocladia irregularly placed.







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Allan Hancock Foundation Publications of The University of Southern California,  
Hancock Atlantic Expedition, Report Number 4. Illustrations of the various species  
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